DEPARTMENT OF DEFENSE
MERIT
Materials of Evolving Regulatory Interest Team

Emerging Contaminants Directorate

SERDP/ESTCP Workshop
Surface Finishing and Repair Issues for Sustaining New Military Aircraft
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Management of Toxic Materials in DoD: The Emerging Contaminants Program

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Report Documentation Page

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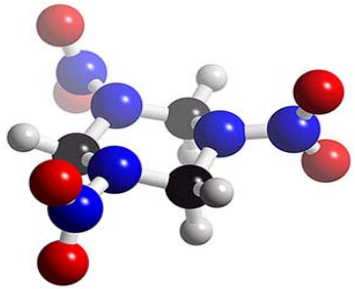
Presentation Overview

- **Brief Description of DoD's Emerging Contaminants (EC) Program**
- **Management of Toxic Materials in DoD: Recent Developments**
  1. Lifecycle Management of the Department's Toxic and Hazardous Chemicals
     - » Implementing Executive Order 13423, "Strengthening Federal Environmental, Energy, and Transportation Management"
  2. Determining the Role of Chemical 'Ranking' Systems
     - » New EC report describes systems at DoD as well as industry, non-profits and other government agencies

What Is an Emerging Contaminant?

At the Department:
Emerging Contaminants (ECs) are defined as

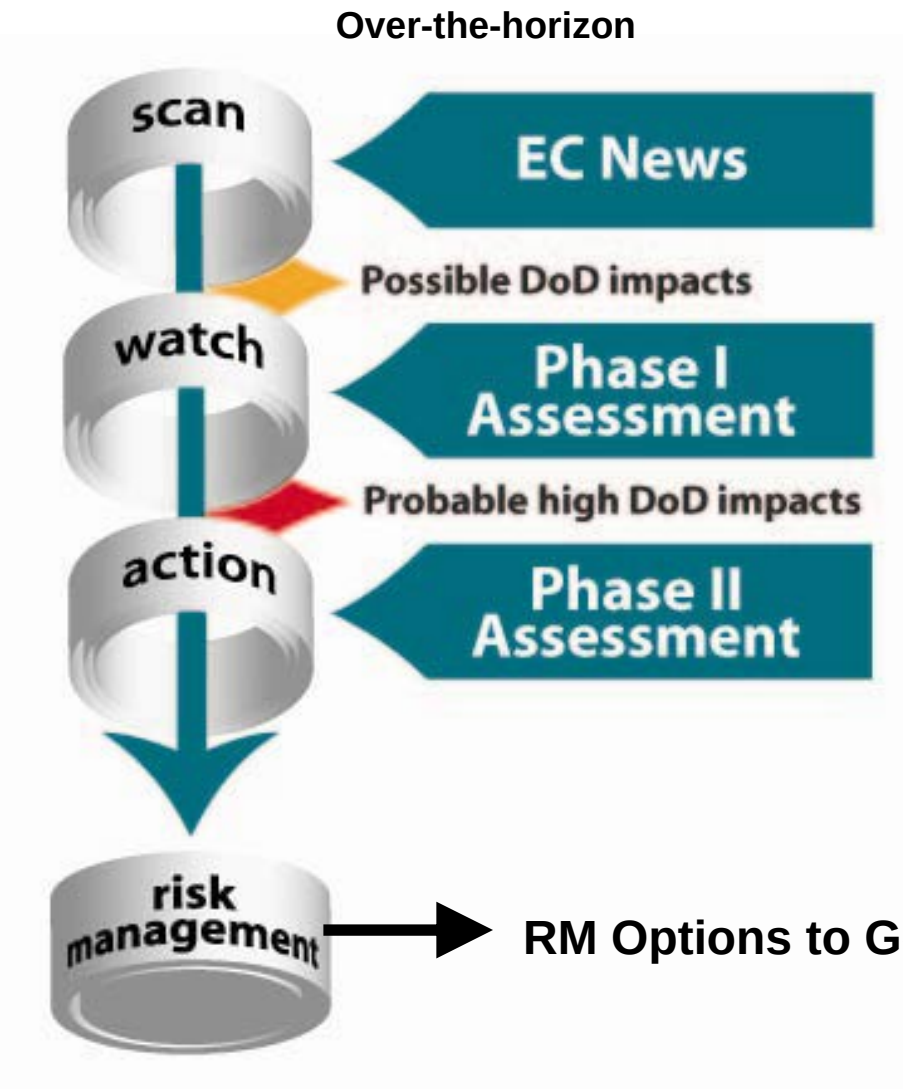
- Chemicals & materials with
  - Perceived or real threat to human health or environment
  - Either no peer reviewed health standard or an evolving standard
- May have
  - Insufficient human health data/science
  - New detection limits
  - New exposure pathways



How Can ECs Affect DoD?

- Adverse health effects on operating forces, DoD employees, and/or public
  - Human health protection paramount
- Reduced training/readiness
  - Restrictions on use of ranges
- Restricted or non-availability of material
  - Adverse impact on mission-critical applications & industrial base
- Increased O&M and/or cleanup costs
  - Resource drain from mission needs

EC "Scan-Watch-Action" Process

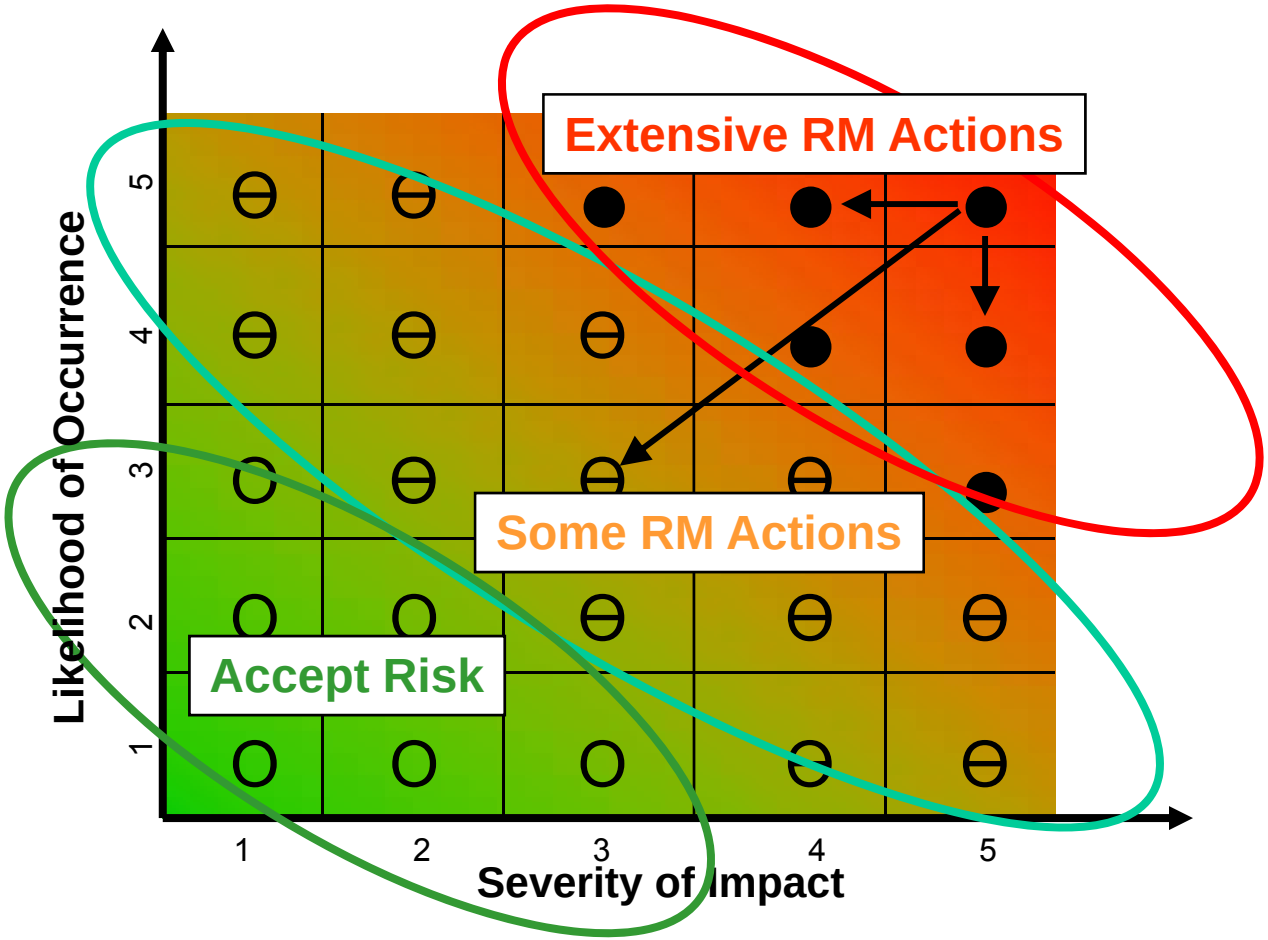


Review literature, periodicals, regulatory communications, etc. to Provide early warning of ECs of possible interest to DoD

Monitor events; Conduct Phase I qualitative impact assessment to assess impacts to DoD

Conduct Phase II quantitative impact assessment with risk management options to create strategic investment options for enterprise consideration
First Phase II assessment: hexavalent chromium

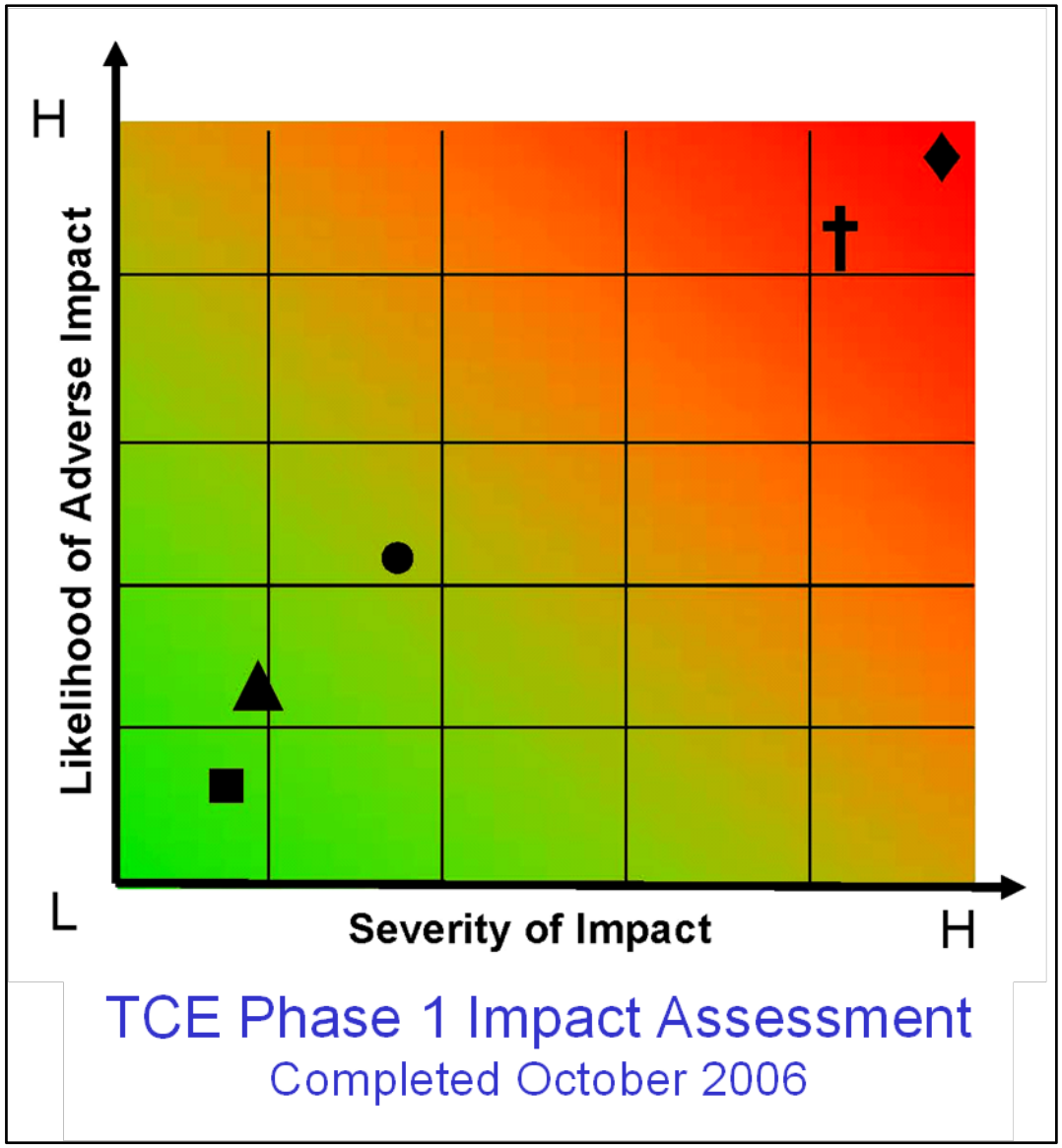
Integrated Risk Management (RM)
Phase I Assessment



RM Options

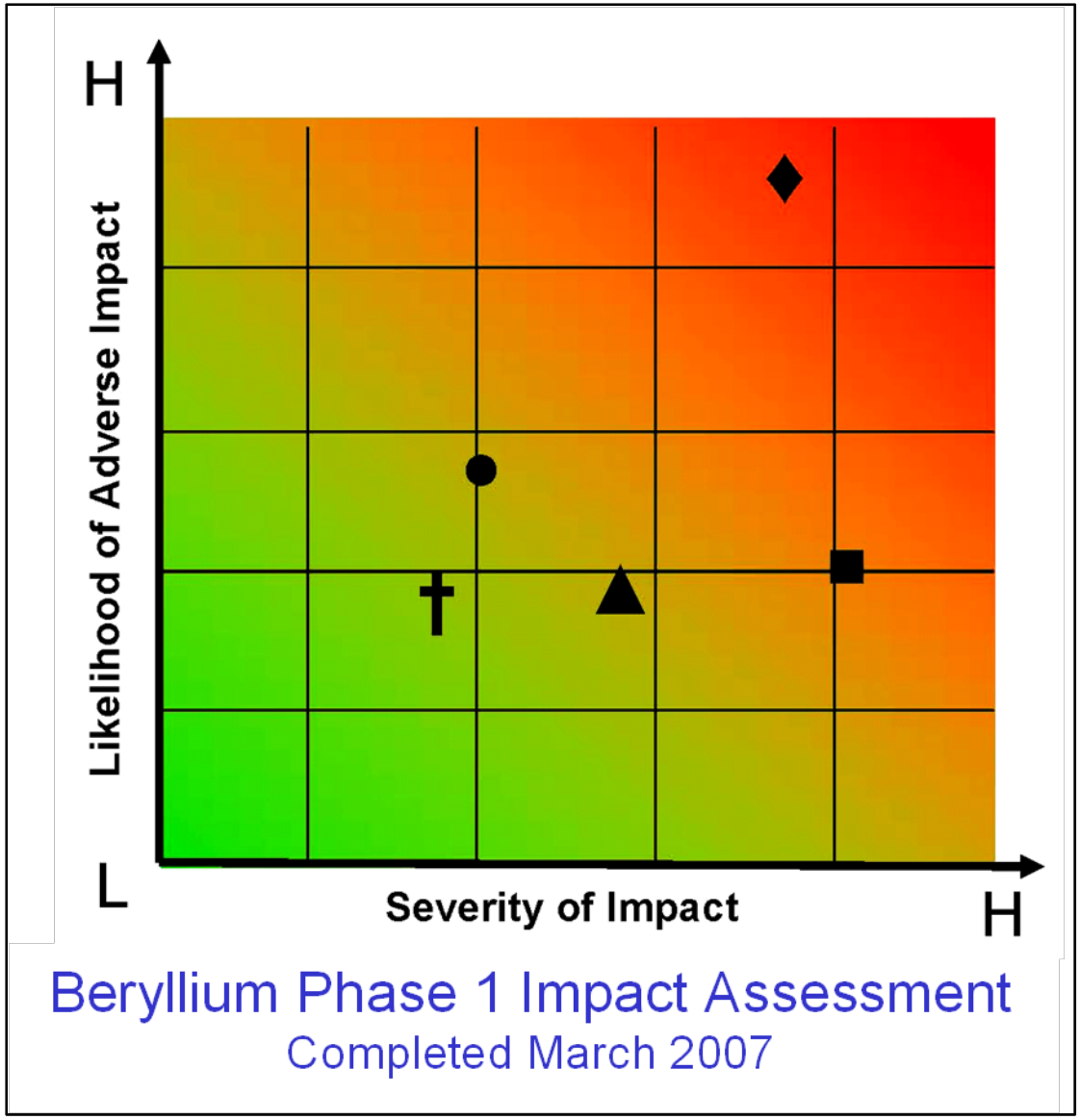
- Fill tox science gaps
- RDT&E
- Material substitution
- Process changes
- Regulatory engagement
- Stockpile material
- Exposure assessment & monitoring
- Personal Protective Equipment (PPE)
- Acquisition changes
- Benchmark with industry
- Risk communication
- Training

Example: TCE and the Relative Risks to EH&S and Cleanup



Legend
- ♦ ES&H
- ■ Readiness & Training
- ▲ Acquisition/RDT&E
- ● O&M of Assets
- † Cleanup

Example: Beryllium and the Relative Risks to EH&S and Readiness & Training



Final Note on EC Program: 'Watch' List and 'Action' List Differences

Watch List

- May impact DoD
- Limited analysis of impact – more qualitative
- Monitor external actions
- Updated regularly
- Short info sheets developed
- Minimal resources expended

Action List

- Likely to impact DoD
- Detailed analysis of impact – more quantitative
- Take RM actions
- Executive info sheets developed
- Significant resources may be expended
- "Material champion" assigned

1. Recent Development: Toxic and Hazardous Chemicals Management

- **Foundation of EO 13423 Reduction Plan**
  - Builds upon existing programs (next slide) for continual improvement and uses DoD's existing Environmental Management System (EMS) framework
- **Lifecycle Approach to Weapons and Facilities**
  - Focuses on the three key phases of Acquisition, Operations & Sustainment, and Disposal
- **Sound Business Planning**
  - Characterizes current situation, recognizes 'best practices' and potential barriers, and employs 'gap analysis' to identify next steps

DoD Agency-Level Contributors
to EO 13423 Chemical Management Plan

- Systems Acquisition Environment Safety and Occupational Health (Systems Acq. ESOH)
- Emerging Contaminants (EC)
- Environmental Management Systems (EMS)
- Green Procurement (GP)
- Hazardous Material Business Transformation (Hazmat BT)
- Hazardous Waste (HW)
- Ozone Depleting Substances (ODS)
- Toxics Release Inventory (TRI)

Advantages of this Management Plan

- **Increased Visibility into DoD Systems Using Lifecycle Chemical Management**
  - Advances the identification and prioritization of mission-critical chemicals
  - Reduces potential occupational health hazards
  - Improves program/process efficiencies
  - Decreases the Department's risks as well as costs
- **Other Benefits Include Informing Future Policy Decisions on**
  - DoD chemical stockpiles
  - DoD's research into 'benign', sustainable chemicals
  - Responsiveness & competitiveness of U.S. industries

Some Important Plan Milestones

- Initiate collective evaluation of DoD chemical management programs and organizations for gaps (February 2008)
- Centralize Component chemical policy oversight at the Office of the Secretary of Defense, OSD (March - August 2008)
- Coordinate and vet specific toxic and hazardous chemical reduction goals with each of the Services (November 2008)

2. Recent Development: Chemical Ranking Systems

- **Study Conducted by Noblis for EC Program to**
  - Inform the Department of the nature and the number of existing systems used *within* DoD
  - Inform the Department of the comparative nature and the number of existing systems used *outside* DoD (by industry, non-profits, other government agencies, etc.)
  - Determine the extent of
    - » Current use of DoD systems within DoD
    - » Current (in any) and possible use of non-DoD systems within DoD

Chemical Ranking Systems (cont.)

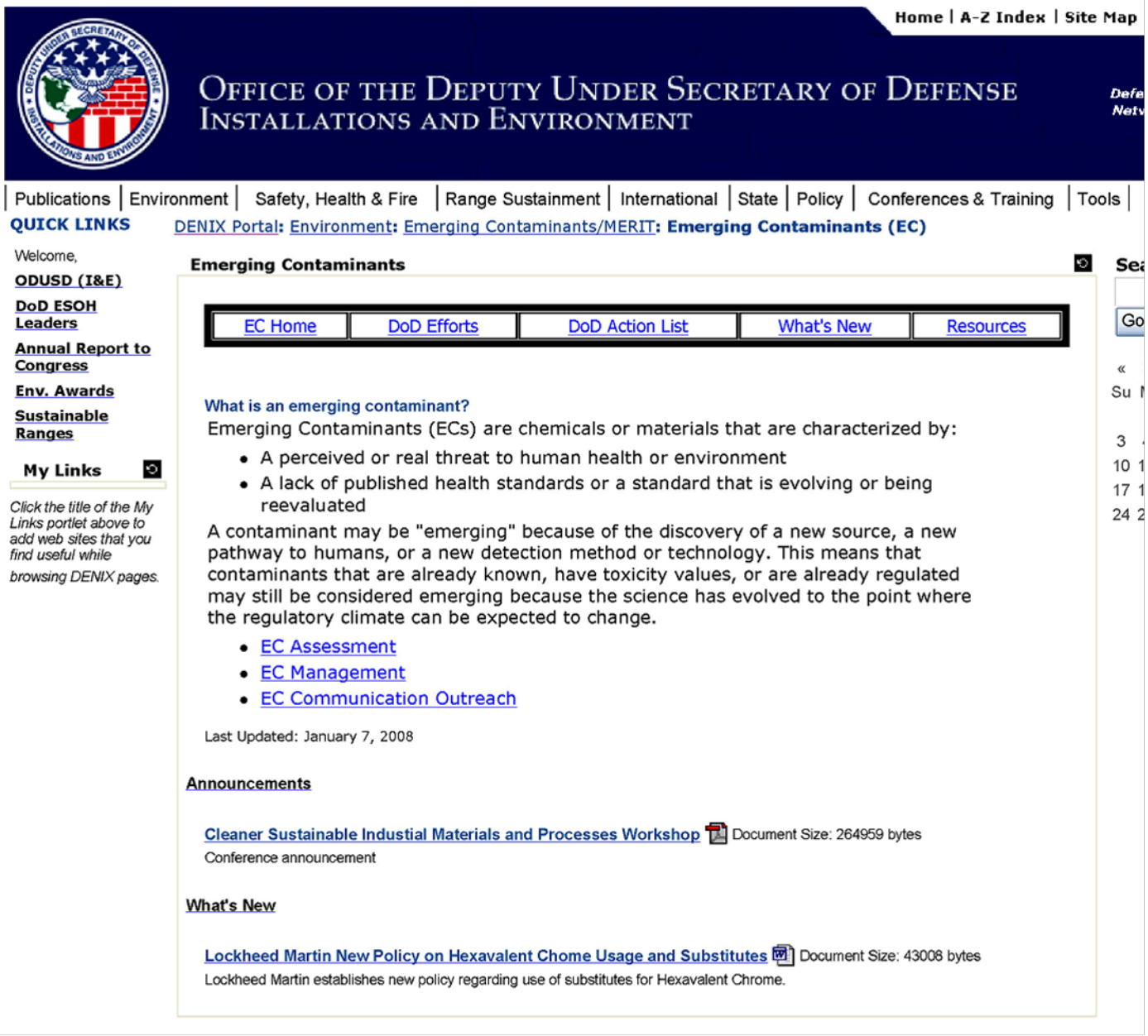
- **Results of Study (Phase I)**
  - Surprisingly: Far more systems identified within DoD than previously thought
  - Not so surprisingly: Systems identified were found to be application-specific
  - Seven (7) systems selected for detailed consideration based on
    - Accessibility
    - Cost
    - Flexibility
    - Database quality
    - Potential for wider applicability
  - No *one* existing system is likely to meet *all* of DoD's needs

Chemical Ranking Systems (cont.)

Next Steps

- Provide a 'roadmap' for DoD decision-makers to select the most appropriate system for their purposes
  - Maximizes utilization of existing tools
  - Minimizes duplication of efforts
- Consider a 'Phase II' study to determine the feasibility of incorporating elements of some/several/all systems to develop a DoD 'master' chemical ranking system
  - Assists with 'lifecycle' efforts under EO 13423 for more sustainable chemical management to reduce environmental, safety and health risks, based on sound business practices
  - Requires educational/training component (i.e., curriculum development and testing), with input from the authors of the various chemical ranking systems
- Make current report available on the website

Emerging Contaminants (EC)
https://www.denix.osd.mil/portal/page/portal/denix/environment/MERIT/EC



Upcoming Event

Home What's New Program Areas Assistance Events Training Opportunities Members Help

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March 17, 2008

Cleaner Sustainable Industrial Materials & Processes Workshop: DoD's New Challengees - Re-engineering Industrial Processes to Achieve Mission Sustainability, Minimize Risk, Reduce Costs

This workshop is about what is being done and what remains to be done to reduce the use of potential harmful substances in the workplace, conserve energy, reduce GHG emissions, and minimize cost of maintaining military material by utilizing environmentally compatible appraoches to combat corrosion.

This unique workshop brings together DoD, NASA, EPA, and Industry reps at the policy and practice levels in a variety of formal and informal settings that encourage information flow. A robust agenda has been set up that addresses issues across the emerging contaminants portfolio -- from nanomaterials risk assessment to qualifications of alternative materials and new chemical management initiatives.

THE NAEM Chemical Risk Management Working Group, which is focusing on identifying opportunities to enhance management of DoD's and Defense related industry chemical risks, will meet on Wednesday afternoon of the CSIMP (during the field trip to Navy facilities to see recent sustainability accomplishments).